Installation Instructions for 45HQ Mortise Locks

Contents

These installation instructions describe how to install your 45HQ Mortise Lock. Topics covered include:

Preparing the door 1
Configuring and installing the mortise case 3
Installing the trim 4
Finishing the installation 9

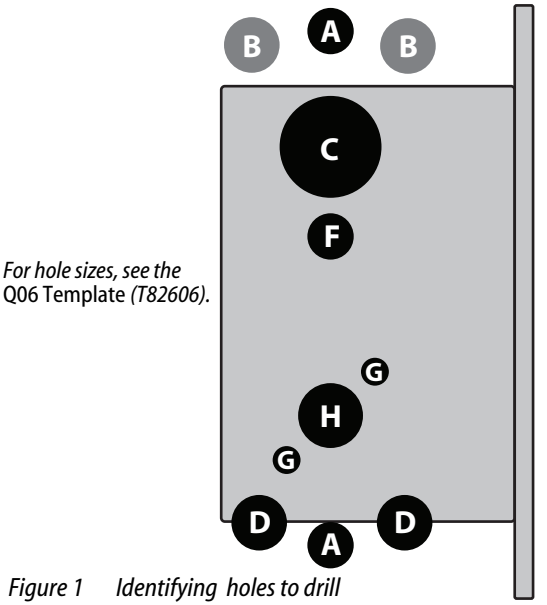
Patents

Products covered by one or more of the following patents:

6,720,861

1 Identify holes to drill

1 Determine the lock function to be installed.
2 Determine the inside and outside, hand, and bevel of the door.
3 See the *Holes by Function* table and Figure 1 to determine the holes to be drilled for the lock function.



For hole sizes, see the Q06 Template *(T82606).*

Figure 1 Identifying holes to drill

Holes by Function	Functions			
	DV		TV	
Holes to drill	**I/S**	**O/S**	**I/S**	**O/S**
A Forged trim (2 holes)†	Through door		Through door	
B Harness†	Through door		Through door	
C Standard cylinder		■		■
D Sensor & motor wire (2 holes)	■		■	
F Thumb turn			■	
G Trim mounting (2 holes)‡	Through door		Through door	
H Lever††	Through door		Through door	

† Determine trim holes based on trim type.
‡ Because these holes pass through the mortise pocket, it is recommended that each hole be drilled separately rather than straight through.

Preparing the door

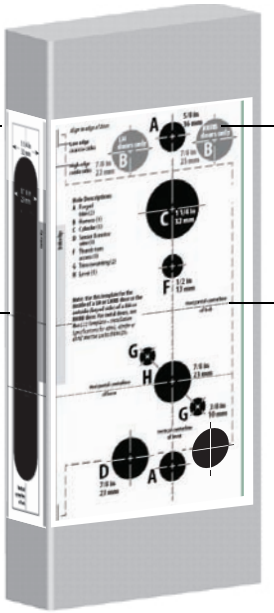


Figure 2 Aligning the templates

2 Align templates

Note: *If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement. For dimensions for preparing metal doors, see the* Q03 Template—Installation Specifications for 45HQ Mortise Locks *(T82603).*

1 Separate the four templates provided on the *Q06 Template—Installation Template for 45HQ Mortise Locks* (T82606).

2 Position one of the door edge templates on the door, making sure that the lock case mortise shown on the template aligns with the mortise pocket prepared in the door.

3 Using the centerlines on the door edge template as a guide, position the appropriate door template on each side of the door. You need to take the bevel into account. Tape the templates to the door.

3 Center punch and drill holes

1 Center punch the necessary drill points. See the instructions on the template.

2 Drill the holes.

Note 1: *To locate the center of a hole on the opposite side of the door, drill a pilot hole completely through the door.*

Note 2: *For holes through the door, it is best to drill halfway from each side of the door to prevent the door from splintering.*

Preparing the door

4 Install door status switch *(optional for deadbolt TV function locks only)*

1 Position the shield on the door status switch with the notch facing downwards (towards the mortise pocket).

Caution: **Make sure the wires are not routed across any sharp edges or over any surface that could damage its sleeving.**

2 Feed the wires for the door status switch into the door status switch hole and through the channel into the mortise cavity and out through one of the sensor and motor wire holes.

3 Press fit the door status switch assembly into the door status switch hole.

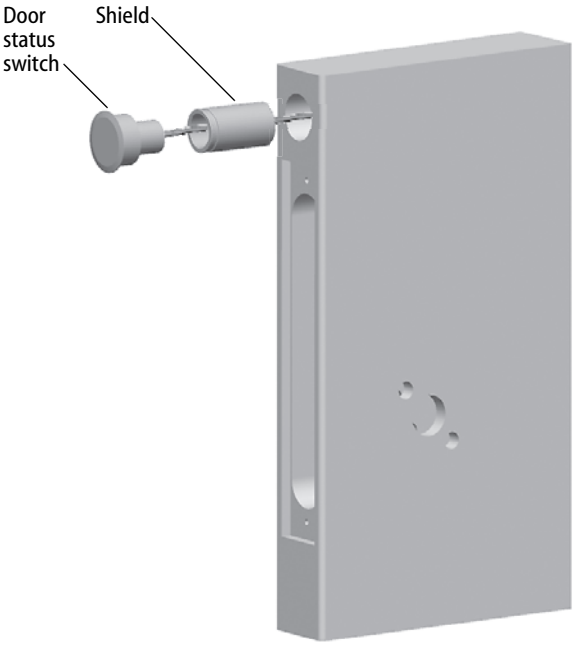


Figure 3 Installing the door status switch for

Configuring & installing the mortise case

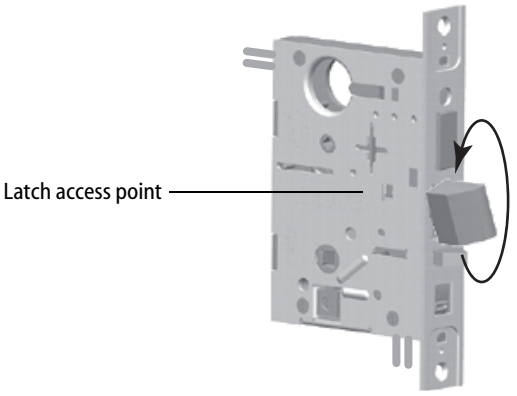


Figure 4 Rotating the latchbolt

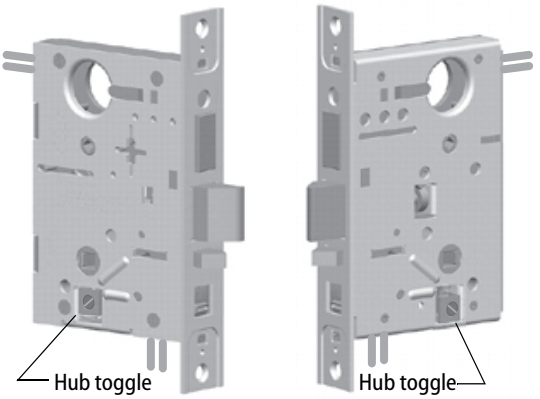


Figure 5 Positioning hub toggles

5 Rotate latchbolt *(if necessary)*

Note: *If a function specific mortise case was ordered, some steps for configuring the case have already been performed at the factory.*

1 Determine whether you need to rotate the latchbolt to match the handing of the door.

Note: *The angled surface of the latchbolt must contact the strike when the door closes.*

2 If you need to rotate the latchbolt, insert a flat blade screwdriver into the latch access point approximately 1/2″ into the case and press to extend the latch out of the case. See Figure 4.

3 Rotate the latchbolt 190 degrees (slightly past 180 degrees) and allow it to retract into the case.

6 Position hub toggles *(if necessary)*

1 Check whether the hub toggles are in the proper position for the lock. See the table below and Figure 5.

Hub toggle positions

Function	Hub toggle positions
DV, TV	Inside down (always unlocked) & outside up (lockable)

Note: *For LH & LHRB doors, the inside is the back side of the case and the outside is the cover side of the case. For RH & RHRB doors, the inside is the cover side of the case and the outside is the back side of the case. The cover is mounted to the case with four screws.*

2 To change the position of a hub toggle, remove the toggle screw, move the toggle into the desired position, and re-tighten the screw.

Installing the trim

7 Install mortise case

1 Drill the holes for the case mounting screws.

2 Insert the mortise case into the mortise cavity, while feeding the sensor and motor wires into the mortise cavity and out the two sensor & motor wire holes to the inside of the door as shown in Figure 6.

Note: *The armored front of the mortise case self-adjusts to the door bevel.*

3 Secure the mortise case with the case mounting screws.

8 Install trim mounting plates

1 Insert the outside trim mounting plate through the door and mortise case.

2 Position the inside trim mounting plate opposite the outside trim mounting plate and screw them securely in place.

Caution: **Do not overtighten the trim mounting plate screws. Overtightening may damage the locking mechanism.**

3 By temporarily installing a lever, test the lock to make sure that it doesn't bind.

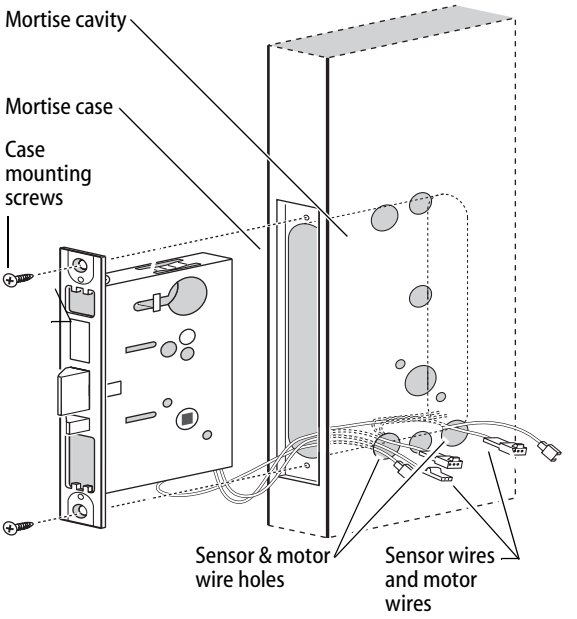


Figure 6 Installing the mortise case (inside of door)

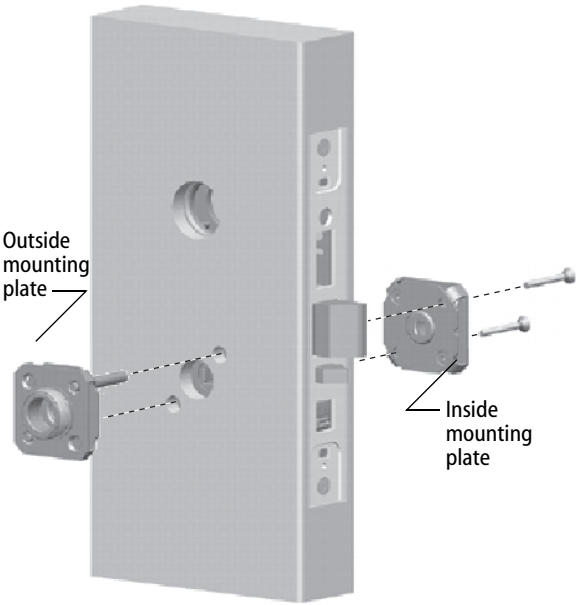


Figure 7 Installing the trim mounting plates

Installing the trim

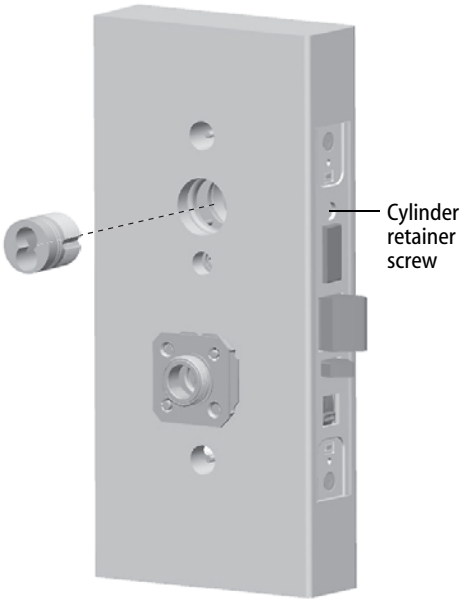


Figure 8 Installing the concealed cylinder

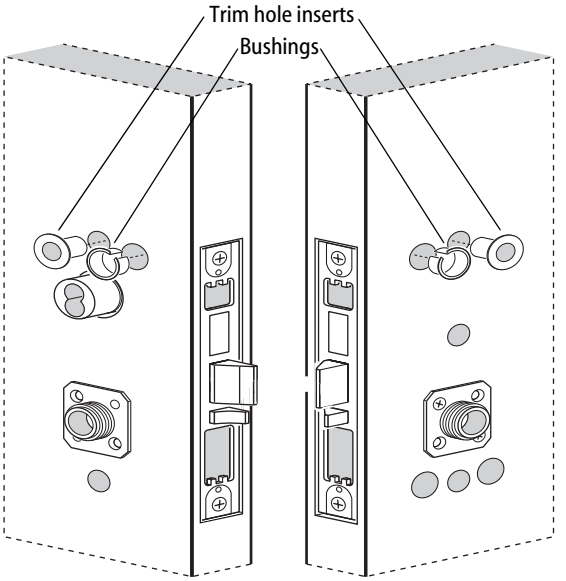


Figure 10 Installing the trim hole inserts and bushings

9 Install concealed cylinder & core

1 Use a cylinder wrench to thread the cylinder into the mortise case so that the groove around the cylinder is even with the door surface as shown in Figure 8.

Caution: **A malfunction can occur if the cylinder is threaded in too far.**

2 Secure the cylinder in the mortise case with the cylinder retainer screw.

3 Insert the control key into the core and rotate the key 15 degrees to the right.

4 With the control key in the core, insert the core into the cylinder.

5 Rotate the control key 15 degrees to the left and withdraw the key.

Caution: **The control key can be used to remove cores and to access doors. Provide adequate security for the control key.**

10 Install trim hole inserts and bushings

1 Insert the two trim hole inserts into the upper trim hole on each side of the door, as shown in Figure 10.

2 Insert the two bushings into the harness hole on each side of the door, as shown in Figure 10.

Installing the trim

11 Route wire harnesses and position outside escutcheon

1 From the outside of the door, feed the motor connector, battery connector, and sensor connectors through the harness hole.

Caution: **When routing the connectors, make sure the harnesses are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.**

2 Perform these steps:

a Firmly press the outside escutcheon in position on the door. The core should be flush with the outer surface of the escutcheon.

b If necessary, adjust the cylinder depth plus or minus one turn so that the core is flush with the outer surface of the escutcheon.

c Secure the cylinder in the mortise case with the cylinder clamp screw.

3 Rest the outside escutcheon on the door by inserting the trim studs into the trim holes.

Tip: *You can temporarily install the outside lever to hold the outside escutcheon in place. See Figure 15 on page 10.*

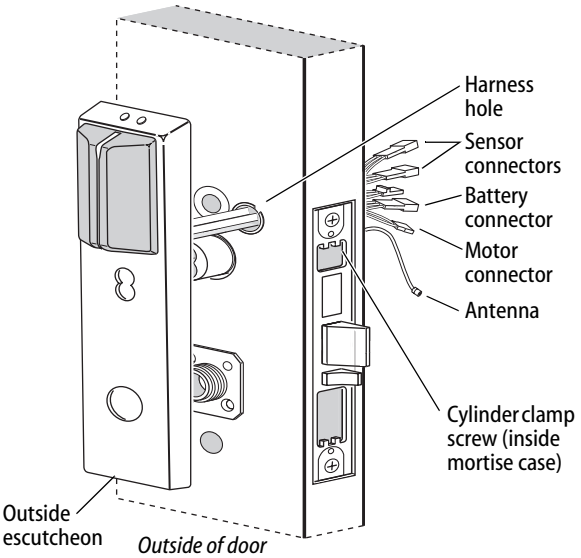


Figure 11 Feeding the wire harness connectors through the harness hole

Installing the trim

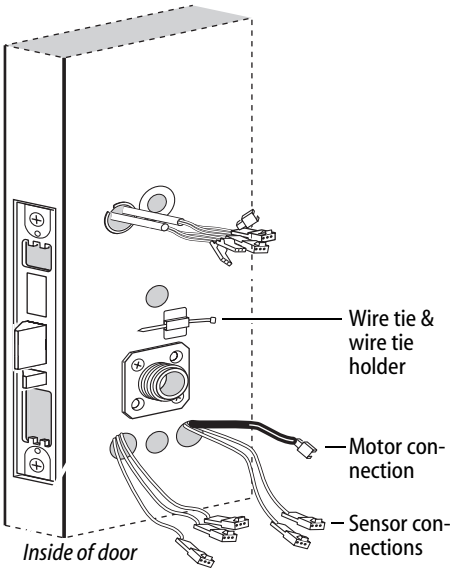


Figure 12a Using the wire tie and wire tie holder to manage the connections

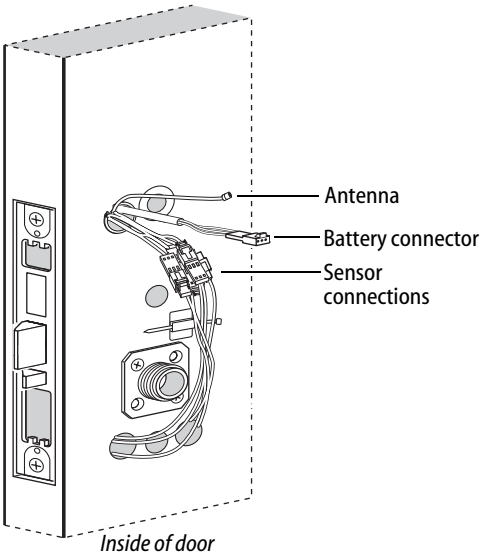


Figure 12b Making the motor connection and sensor connections

12 Make motor and sensor connections

Note: *We suggest that you use a wire tie and wire tie holder to help manage the wire harnesses and their connections. This will also help keep the harnesses in place inside the escutcheon and help prevent the wires from being pinched.*

1 Affix the wire tie holder and insert the wire tie as shown in Figure 12a.

2 From the inside of the door, make the following connections:

- motor
- key override sensor
- deadbolt sensor
- RQE (request to exit)
- door sensing
- latchbolt sensing

Wire connection	Colors	No. of wires	No. of pins
Motor	Yellow-gray	2	2
Key override sensor	Gray	2	3
Deadbolt sensor	Blue	2	3
RQE	Orange-brown	2	3
Door sensing	White	2	2
Latchbolt sensing	Purple	2	2

Note: *It is physically possible to connect the key override sensor connector from the mortise case to the battery connector from the wire harness. To avoid this mistake, connect only the connectors with matching wire colors.*

Caution: **When making the motor connection and sensor connections, make sure:**

- **there are no loose wire connections where the wires are inserted into the connectors**
- **the connectors are firmly mated**

3 Push any excess wire back into the holes to help avoid pinching wires.

Installing the trim

13 Secure escutcheons

1 Position the inside and outside escutcheons on the door.

2 **Making sure that the escutcheons do not pinch the wires**, secure the escutcheons to the door. Do not tighten the screws completely. Use the combination mounting screw in the upper trim hole and the standard mounting screw in the lower trim hole.

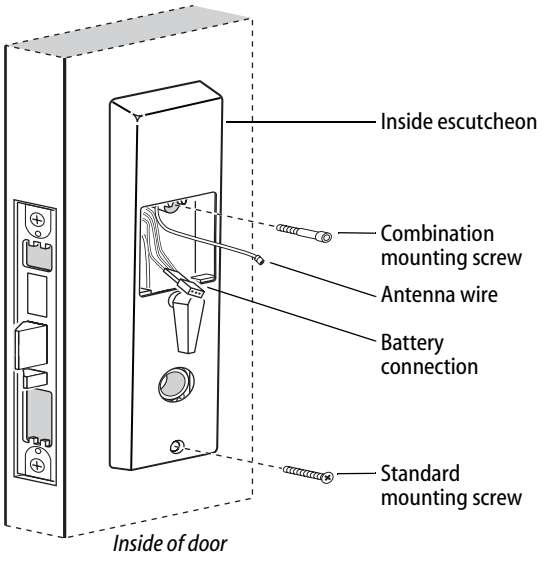


Figure 13 Securing the escutcheons

14 Install battery pack

1 Connect the battery pack to the battery connector on the wire harness inside the battery compartment.

When the battery pack is connected for the first time, the lock will go through a self check and you should see eight red, then green alternating flashes.

Note: *The battery connection has 3 wires and 3 pins. The wire colors are:*

- *red (2)*
- *black*

Caution: **When connecting the battery pack, make sure:**

- **there are no loose wire connections where the wires are inserted into the connectors**
- **the connectors are firmly mated.**

2 Place the battery pack inside the battery compartment so that the foam will face the battery compartment door.

3 When routing the battery wires, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

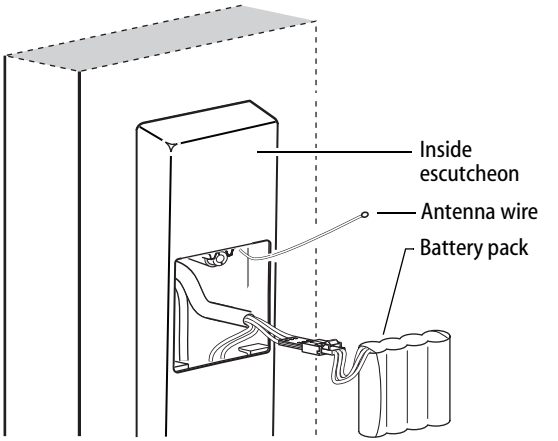


Figure 14 Connecting the battery pack

Completing the installation

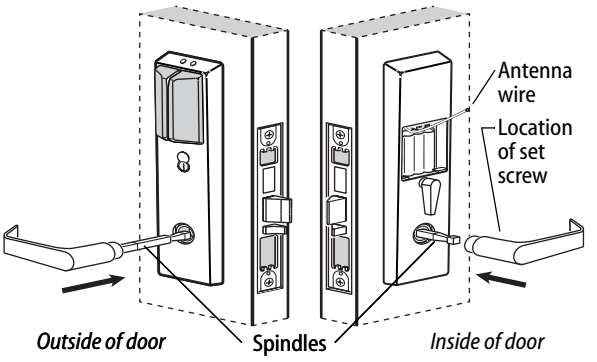


Figure 15 Installing the levers

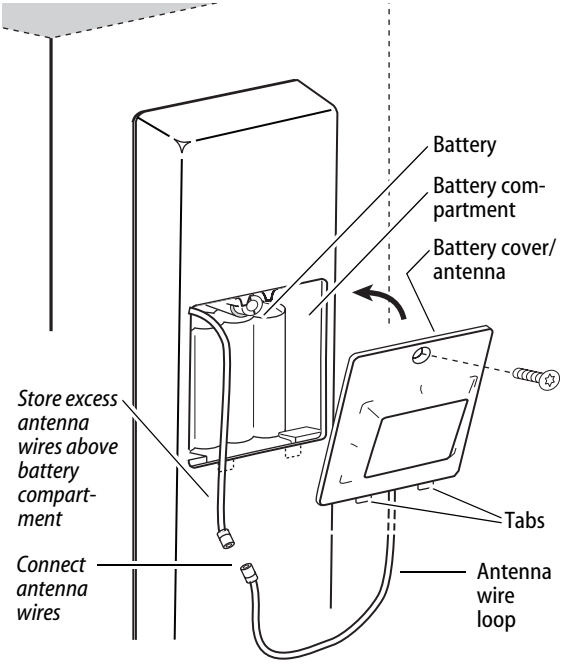


Figure 16 Installing the battery compartment door

15 Install inside and outside levers

1 Unscrew the inside spindle one full turn to allow the spindles to turn freely.

2 With the handle pointing toward the door hinges, insert the outside lever and spindles assembly into the lock from the outside of the door.

3 Slide the inside lever onto the inside spindle and secure it with the set screw.

4 Making sure that the core is positioned properly in the outside escutcheon and the escutcheons are aligned properly on the door, tighten the escutcheon mounting screws.

Note: *If a core is not available, you can use the cylinder wrench to help you align the core opening in the escutcheon.*

5 Turn the levers to check that they operate smoothly.

16 Install battery cover/antenna

1 Carefully shape the antenna wire with a loop as shown in Figure 16.

Caution: **Carefully bend, but do not twist or kink the antenna wire. Doing so may significantly reduce or completely interrupt signal transmission.**

2 Connect the antenna to its mating connector.

3 Route the antenna wire down below the battery compartment. See Figure 16.

4 **Making sure that the battery cover/antenna does not pinch any wires**, insert the tabs of the battery cover/antenna into its mating slots and swing the door closed.

6 Use a T15 TORX bit driver to secure the battery compartment door with the security screw. Tighten firmly.

Completing the installation

17 Install mortise case faceplate

1 Secure the mortise case faceplate to the mortise case with the faceplate mounting screws.
2 Check the lock for proper operation.

18 Install strike box and strike plate

1 Insert the strike box into the mortise in the door jamb. Place the strike plate over the strike box and secure the strike with the screws provided.
2 Check the position of the auxiliary bolt against the strike plate.

Caution: **The auxiliary bolt must make contact with the strike plate. The auxiliary bolt deadlocks the latchbolt and prevents someone from forcing the latch open when the door is closed. If the incorrect strike is installed, a lock-in can occur.**

Note: *The recommended gap between the door and jamb is 1/8″ .*

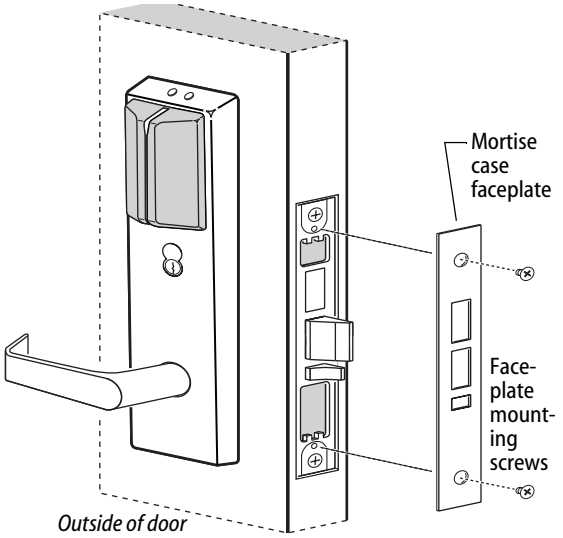


Figure 17 Installing the mortise case faceplate

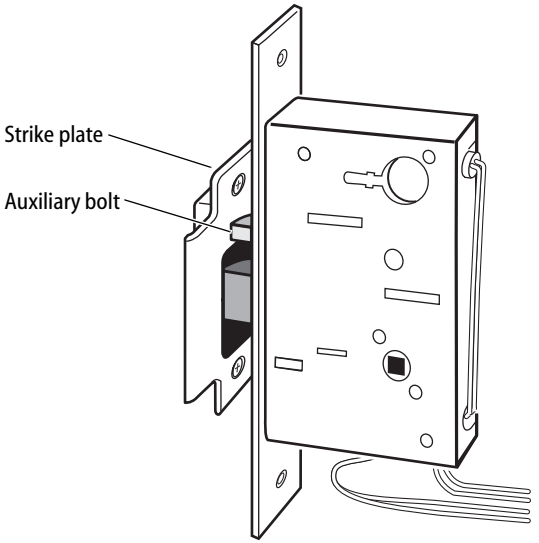


Figure 18b Positioning the strike

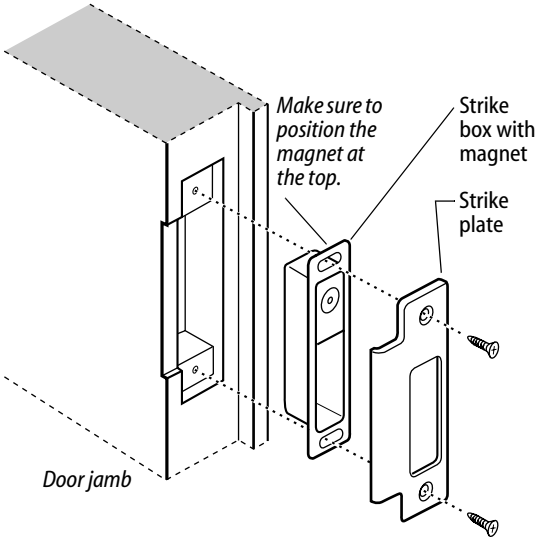


Figure 18a Installing the strike box and strike plate

Testing the lock

19 Test lock

For 45HQ Locks with keypad

To test the lock for proper operation before the lock is programmed, follow these instructions:

1 Press **1234**.

2 Press **#**.

The green light flashes and the locking mechanism unlocks.

3 Turn the lever and open the door.

For all other locks:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the lock. This card is for temporary use only. After permanent cards have been programmed for the lock, the temporary card should be deleted.

1 Use the temporary operator card to activate the lock.

Note: *If the lock has a proximity card reader, it may have already been activated by the presence of an object near the card reader.*

2 Use the temporary operator card to access the lock.

The green light flashes and the locking mechanism unlocks.

3 Turn the lever and open the door.

If the mechanism doesn't unlock, refer to the following table. For additional troubleshooting instructions, see the Service Manual.

LEDs	Sounder	You should
Single red flash	—	Use the card at a moderate speed.
Red flashes	3 short tones	Use the temporary operator card provided with the lock.
Green flashes	—	Check the motor connection.
—	—	Check the battery connection.

For all locks

Insert and turn the key to unlatch the door.

For all TV function locks

4 From the inside of the door, turn the turn knob and make sure that the deadbolt operates properly.

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